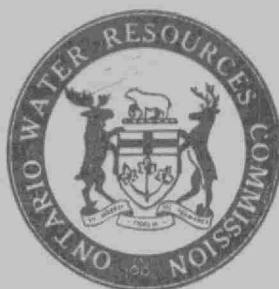


STANDARDS DEVELOPMENT BRANCH OMCE



36936000010259

W.Q. LIB
MRETLAND 2 (22)



THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
OF THE
VILLAGE OF BRUSSELS
COUNTY OF HURON

1964

TD
380
.B78
1964
MOE

VILLAGE OF BRUSSELS - 1964
COUNTY OF HURON

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

TD
380
.B78
1964

Report on water pollution
survey of the village of Brussels,
county of Huron.

80448

R E P O R T

ON

WATER POLLUTION SURVEY

OF THE

VILLAGE OF BRUSSELS

COUNTY OF HURON

September 1964

by

ONTARIO WATER RESOURCES COMMISSION

REPORT

INTRODUCTION

A pollution survey was carried out in the Village of Brussels on September 29th, 1964, in an effort to locate and evaluate all existing sources of pollution. Such surveys are carried out routinely, and upon request, by the Sanitary Engineering Division of the Commission as a basis for determining water supply and sewage treatment requirements.

Information and assistance necessary for the completion of this report were provided by the following persons whose co-operation is herein acknowledged.

Mr. W. King, Clerk, Village of Brussels
Mr. D. Hastings, Foreman, Village of Brussels
Mr. R. B. Cousins, Cousins Creamery Limited

Weather conditions during the time of the survey were fair and warm with the temperature of 75°F. No rain was recorded in the area during the preceeding three days.

I GENERAL INFORMATION

The Village of Brussels is located in the north-east portion of the County of Huron, 10 miles south-east of Wingham. The Middle Maitland River flows through the central part of the village in a north-westerly direction to its confluence with the main branch of the river at Wingham.

The 1964 Municipal Directory lists the local population as 820 and the 1963 assessment is reported as \$ 700,000. Other than a local creamery, there are no industries in the village and the economy

is based almost entirely on retail outlets and services.

II WATER USES

1. Municipal Water System

The village derives its water supply from two deep drilled wells. Both sources provide water of acceptable quality from a bacteriological and chemical standpoint.

Water is pumped from the wells to a 100,000 gallon concrete reservoir. A regular and a stand-by pump, each rated at 150 I.G.M. deliver water to the distribution system. The estimated daily pumpage is 100,000 gallons to 280 individual services. There are reported to be only six private well supplies in the village, each serving single dwellings.

2. Recreational Water Uses

The Middle Maitland River, above and below the village, is used for occasional fishing but does not provide suitable conditions for bathing. A municipal wading pool is provided with water from the village water supply.

III WATER POLLUTION

1. Sanitary Waste Disposal

(a) Existing Conditions

Domestic sewage disposal is left to the individual property owner and in most cases, consists of septic tanks and disposal beds or cesspools. In one instance, such a disposal bed is known to be underdrained with an ultimate discharge to the

municipal storm sewer system.

Details of the storm sewer system are not readily available. However, five drain outlets were located at various points along the river bank each of which showed evidence of periodic discharges. During the period of the survey, four of these drains were found to have effluents of varying volumes. Physical evidence indicated the presence of domestic sewage in each case and samples of the effluent were secured for laboratory analyses. A discussion of the results of these analyses which occupies a later portion of this report, confirms the presence of sanitary sewage, in reasonably large volumes, in the storm sewer system.

(b) Proposed Sewage Works

In 1958, village officials retained Mr. B. M. Ross, Consulting Engineer, to prepare a report on sewage works requirements for the municipality. While the consultant did conduct a preliminary survey, a full report was never prepared for presentation to the council, and no further action has been taken.

At the present time, the local council anticipates being able to undertake a sewage works programme after 1968.

2. Industrial Waste Disposal

The only significant source of industrial wastes is the Cousins Creamery. The firm manufactures ice cream and butter in considerable volume requiring approximately 50,000 gallons of water per day. Of this volume, 90% is reportedly used exclusively for

cooling purposes with the remainder consumed in production and clean-up.

All clean-up water is passed through a two compartment septic tank, and then is combined with the cooling water for discharge through a tile drain to the Middle Maitland River.

Plans for the installation of a spray irrigation system for the disposal of the plant wastewaters were prepared in late 1963 and the necessary equipment was secured early this year. However, the firm's owner, Mr. R. B. Cousins, found that a number of changes within the creamery would be necessary in order to insure the separation of contaminated and uncontaminated wastewaters. Such alterations are to be made during the coming winter and will eliminate the necessity of disposing of the total waste flow through the spray system. It is expected that this source of pollution will be eliminated early in 1965.

The extent of pollution presently arising from the creamery will be discussed in a later section of this report.

3. Refuse Disposal

The village maintains a refuse disposal site at the northwest limits of the municipality. Refuse is burned and covered on the property. No contamination of the river or any watercourse was observed arising from the operation of the site.

4. Discussion of Sample Analyses

Samples for sanitary chemical and bacteriological analyses

were taken from four municipal sewer outlets, the industrial drain, and from the river above and below the village. The results of these analyses are appended.

Biological Oxygen Demand

The Biological Oxygen Demand (BOD) is an indication of the amount of oxygen required to stabilize the decomposable organic matter present. The OWRC objectives in natural waters and in waste discharges are 4.0 ppm and 15.0 ppm respectively.

Coliforms per 100 ml.

The Coliform organism is generally found in the intestinal tract of humans and other warm-blooded animals. As such, it is frequently used as an indicator of domestic pollution. The objective for natural waters is not more than 2400 organisms per 100 ml.

Discussion

The results of laboratory analyses indicate the presence of excessive organic wastes in the effluents from the north-east and south-west sewers and from the industrial drain outlet. Further, the bacteriological analyses reveal gross contamination in the discharges from all of the sewer outlets. Such contamination in the municipal sewers could only be caused by the presence of domestic sewage. The total combined volume, estimated at approximately 450 gallons per hour, is evidence of the large number of illegal connections to the storm sewer system. In the case of the drain

from the creamery, gross pollution was evident despite the fact that cooling waters provide extensive dilution of the normal plant wastes.

IV SUMMARY & CONCLUSIONS

A water pollution survey of the Village of Brussels was carried out on September 29th, 1964. As reported in previous surveys by the Commission, dating back to 1957, pollution of the Middle Maitland River by domestic and industrial wastes is a continuing problem. The installation of a spray irrigation system to handle wastes from the Cousins Creamery is expected to take place early in 1965, and this action should assist greatly in reducing the problem. However, the ultimate installation of a complete sewage works system for the village must be considered as the only satisfactory method of preventing the pollution of the Middle Maitland River.

V RECOMMENDATIONS

It is recommended that:-

1. A consulting engineer be retained to report on sewage works requirements for the village.
2. Every effort to be made by officials of the village to proceed with a sewage works programme at the earliest possible date.

Prepared by:-

C. Letman, C.S.I.(c).

All of which is respectfully submitted,

District Engineer:

A. B. Redekopp

A. B. Redekopp, P. Eng. *per BHM*

Approved by:

K. H. Sharpe

K. H. Sharpe, Director.

ak

TABLE I
VILLAGE OF BRUSSELS
Municipal Drains Etc.

<u>Date</u>	<u>Sampling Pt. No.</u>	<u>Location</u>	<u>5-Day B.O.D.</u>	<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>Coliforms per 100 ml.</u>	<u>Estimated Flow G.P.H.</u>
Sept.29/64	1	Middle Maitland R. at Dam.	1.0	352	2	352	28,000	-
"	2	North east sewer out- fall at Albert Street.	130	754	42	712	62,000,000	15
"	3	Turnberry Street sewer outfall.	7.2	628	7	621	760,000	300
"	4.	South west sewer out- fall at Mill Street.	28.0	726	21	705	1,600,000	60
"	5	Industrial waste drain- Cousins Dairy.	150	560	80	480	94,000,000	100
"	6	North west sewer out- fall at Elm Street.	12	740	18	722	1,500,000	60
"	7	Middle Maitland R.- North west of Brussels	2.1	342	19	323	150	-

